

corresponding to a specification width of a formed tire, and supplying the cut inner liner to the band forming machine;

(2) carcass supply means for cutting a carcass sheet material having a width, in which a splice margin is added to a band periphery length, to a length corresponding to a specification width of the formed tire, and supplying the cut carcass to the band forming machine;

(3) band rubber parts supply means for injecting a rubber strip from an injection unit, winding the rubber strip around a drum of the band forming machine, and forming, on the basis of its laminated structure, rubber parts having a profile corresponding to a specification of the formed tire; and

(4) bead supply means for supplying a completed bead corresponding to a specification of the formed tire to the band forming machine through a bead setter; and

as means for supplying a belt/tread member there are provided:

(5) belt supply means for cutting a belt strip material, in which plural cords are arranged and rubberized, to predetermined length and angle, mutually splicing edge portions of the plural cut strip pieces to form a belt for one tire, which has a length, a cord angle and a width corresponding to specifications of the formed tire, and supplying the belt to the belt/tread forming machine; and

(6) tread rubber parts supply means for injecting a rubber strip from an injection unit, winding the rubber strip around a drum of the belt/tread forming machine, and forming, on the basis of its laminated structure, rubber parts having a profile corresponding to a specification of the formed tire,

wherein the means for supplying the band member and the means for supplying the belt/tread member are operative to cooperate with one another to continuously in series form a plurality of tires having different tire sizes yet a same bead inner diameter and

wherein the bead supply means holds plural kinds of completed beads each having a bead core corresponding to the band periphery length, selects the completed bead corresponding to the specification of the formed tire from the plural

C kinds of completed beads, and supplies the selected completed bead to the band forming machine through the bead setter.

C2 5. (Thrice Amended) A tire forming method using a tire forming system including a band forming machine, a shaping forming machine and a belt/tread forming machine, in each of which setting conditions of a tire size can be optionally changed, and having transport means for delivering a semi-fabricated product to each forming machine, wherein as a process for supplying a band member there are provided:

(1) an inner liner supply process for cutting a inner liner sheet material having a width, in which a splice margin is added to a band periphery length, to a length corresponding to a specification width of a formed tire, and supplying the cut inner liner to the band forming machine;

(2) a carcass supply process for cutting a carcass sheet material having a width, in which a splice margin is added to a band periphery length, to a length corresponding to a specification width of the formed tire, and supplying the cut carcass to the band forming machine;

(3) a band rubber parts supply process for injecting a rubber strip from an injection unit, winding the rubber strip around a drum of the band forming machine, and forming, on the basis of its laminated structure, rubber parts having a profile corresponding to a specification of the formed tire; and

(4) a bead supply process for supplying a completed bead corresponding to a specification of the formed tire to the band forming machine through a bead setter; and

as a process for supplying a belt/tread member there are provided:

(5) a belt supply process for cutting a belt strip material, in which plural cords are arranged and rubberized, to predetermined length and angle, mutually splicing edge portions of the plural cut strip pieces to form a belt for one tire, which has a length, a cord angle and a width corresponding to specifications of the formed tire, and supplying the belt to the belt/tread forming machine; and

(6) a tread rubber parts supply process for injecting a rubber strip from an injection unit, winding the rubber strip around a drum of the belt/tread forming machine, and forming, on the basis of its laminated structure, rubber parts having a profile corresponding to a specification of the formed tire,

wherein the forming system is operative to continuously in series form a plurality of tires having different tire sizes yet a same bead inner diameter and

wherein, in the bead supply process, plural kinds of completed beads each having a bead core corresponding to the band periphery length are prepared, the completed bead corresponding to the specification of the formed tire is selected from the plural kinds of completed beads, and the selected completed bead is supplied to the band forming machine through the bead setter.

Please add new claims 9-16 as follows:

9. (NEW) A tire forming system, comprising:

band forming means having a band forming drum, bead setting means, shape forming means, belt transferring means, belt/tread forming means having a belt/tread forming drum, band rubber parts supply means, carcass supply means, inner liner supply means, bead supply means, belt supply means and tread rubber parts supply means, wherein

the band forming means, the bead setting means, the shape forming means, the belt transferring means and the belt/tread forming means are linearly arranged along a straight tire forming path with the band forming means disposed upstream of the bead setting means, the bead setting means being disposed upstream of the shape forming means, the shape forming means being disposed upstream of the belt transferring means, the belt transferring means being disposed upstream of the belt/tread forming means and the band rubber parts supply means disposed either upstream or downstream adjacent to the band forming means and with at least the bead setting means and the belt transferring means being movable along the tire forming path and the shape forming means being movable in a direction perpendicular to the tire forming path to and between a first position where the shape forming means

is disposed in the tire forming path and a second position where the shape forming means is disposed away from the tire forming path,

the carcass supply means and the inner liner supply means disposed adjacent to one another in a manner that the inner liner supply means supplies an inner liner to the band forming drum disposed upstream of the band transferring means and the carcass supply means supplies a carcass sheet material to the band forming drum wrapped with the inner liner, the inner liner and the carcass sheet material being supplied to the band forming drum along a carcass/inner-liner supply path oriented perpendicularly to the tire forming path,

the bead supply means supplying one bead at a time to the bead setting means along a bead supply path oriented perpendicularly to the tire forming path,

the belt supply means supplying a belt to the belt/tread forming drum along a belt supply path oriented perpendicularly to the tire forming path, and

the tread rubber parts supply means located adjacent the belt/tread forming means to supply rubber strip material for winding around the belt/tread forming drum.

10. (NEW) A tire forming system according to claim 9, wherein the band rubber parts supply means includes at least a first pair of rubber injection units spaced apart from one another so that a respective one of the rubber injection units is accessible to lateral sides of the band forming drum.

11. (NEW) A tire forming system according to claim 10, wherein the tread rubber parts supply means includes at least a second pair of rubber injection units spaced apart from one another so that a respective one of the rubber injection units is accessible to lateral sides of the belt/tread forming drum.

12. (NEW) A tire forming system according to claim 9, further comprising a first pair of rails extending along and parallel to the tire forming path, at least the bead setting means and the belt transferring means operative to move on and

Sub D17 linearly along the first pair of rails.

13. (NEW) A tire forming system according to claim 12, further comprising a second pair of rails extending in a direction perpendicularly to the tire forming path, the shape forming means operative to move on and along the second pair of rails.

14. (NEW) A tire forming system according to claim 12, wherein at least one of the band forming means and the belt/tread forming means is operative to move on and linearly along the first pair of rails.

15. (NEW) A tire forming system according to claim 9, wherein the bead supply means includes a rotatable stacker having base and a plurality of holding arms extending radially from the base for holding individual ones of the beads.

16. (NEW) A tire forming system according to claim 15, wherein the belt supply means is operative to supply a belt fabricated from an assemblage of strip pieces and is operatively adjustable to cut strip pieces for an assemblage of strip pieces to have a selected cutting angle and a selected length.

REMARKS

Claims 1, 3-5 and 7-16 are pending in the application. By this Amendment, claims 2 and 6 are canceled without prejudice or disclaimer, claims 1 and 5 are amended and claims 9-16 are added. Claims 1 and 5 are amended to incorporate the features of original claims 2 and 6 which are now canceled.

In the final Office Action, claims 1, 3-5, 7 and 8 are rejected under 35 U.S.C. 103(a) as unpatentable over Irie (U.S. Patent No. 4,468,267) in view of Aihara et al. (Japan 59-93345), Brown et al. (U.S. Patent No. 5,554,242), Laurent (U.S. Patent No. 4,963,207), Okada et al. (EP 958,913) and, optionally, Caretta (EP 875,346). The rejection is respectfully traversed.